

ABSTRACT

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"The Circumstellar Environment of the Extremely Young Protostellar Source L1448 IRS3"

The class 0 sources form an interesting new category of protostellar objects. Many have strong millimeter continuum emission and exhibit jetlike outflows. There are suggestions that these objects are systematically younger than typical, embedded (class I) sources. We are investigating the properties of class 0 sources to determine whether they are indeed very young or perhaps represent extreme physical conditions, such as rapid rotation.

We present millimeter interferometric data for the class 0 object, known as L1448 IRS3. This young low-mass star has extremely strong millimeter continuum emission. The interferometer data show the emission is resolved on a scale of a few arcseconds (1000 AU). This suggests the bulk of the dust continuum emission originates in an 'infall' envelope rather than a protostellar disk. In addition, the C180 line data display a strong velocity gradient which indicates the dense core is rapidly rotating. We compare our data with the predictions of protostellar collapse models.